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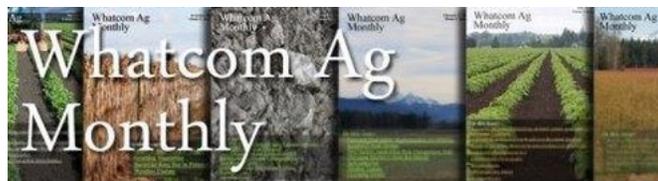
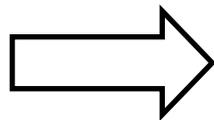
**UPCOMING EVENTS**

# SURVEY

## PLEASE TAKE 5 MINUTES TO PROVIDE FEEDBACK ON THIS NEWSLETTER

We have pulled together a short survey so that we can improve this newsletter for you, the reader. I know people shy away from filling out surveys, but to continue to provide this newsletter we need some feedback.

To get to the Survey click here  
(that's on the image)



**Whatcom AgMonthly Newsletter Survey**

# BIODEGRADABLE MULCHES MAY SOON FIND A PLACE IN CERTIFIED ORGANIC PRODUCTION

Jeremy Cowan  
Horticulture Regional Specialist  
WSU Spokane County Extension

**B**iodegradable plastic mulches, plastic films that are designed to be broken down in the soil and consumed by soil microbes, were introduced to the market in the 1980s as an alternative to traditional plastic. Growers who used these early mulches were disappointed when their fields became littered with plastic which fragmented but did not truly degrade. Fast-forward 30 years, and biodegradable plastics technology has made tremendous advances. Today, there are several products which meet ASTM, Intl. standards for compostability, biodegradation under composting conditions. And while a standard for biodegradation in the soil environment is not yet available [ASTM, Intl. is currently developing such a standard (ASTM WK 29802)], several studies in the United States and Europe report significant breakdown of new biodegradable plastic mulches in the field.

The idea of a product with the benefits of plastic mulch, but without the environmental costs associated with its end-of-life, has a certain appeal to organic crop producers. Setting aside for the moment any economic considerations, a plastic film that can be tilled into the soil without leaving harmful residues could mean the literal reduction of mountains of plastic waste. This seems to be in strong agreement with the spirit of organic agriculture.

However, biodegradable plastics are not currently allowable in certified organic production. To be used in organic production, a plastic mulch must be completely removed at the end of the growing season.

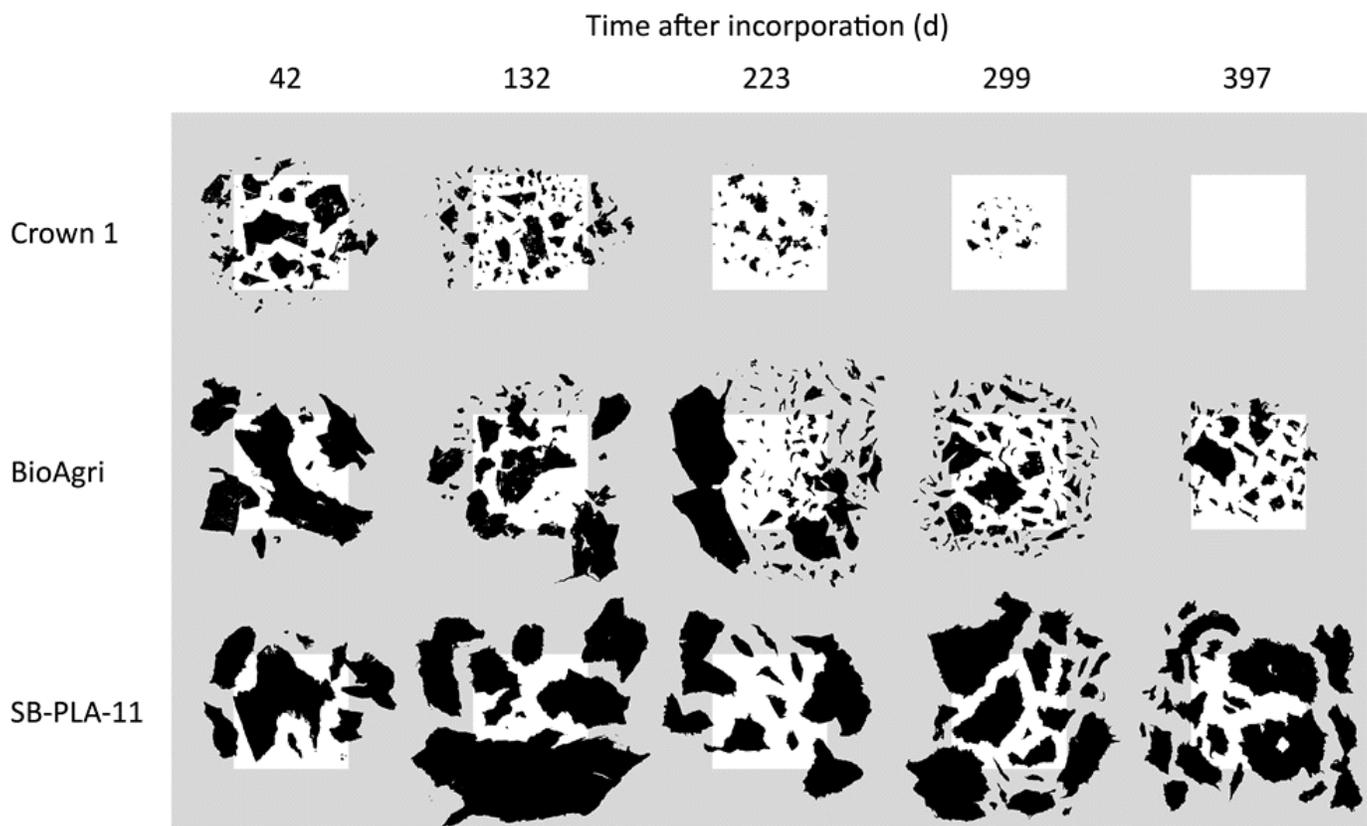
Non-degradable plastics are quite easy to recover. But, because biodegradable mulches are expected to begin breaking down as soon as they are installed, recovery of the material is not practical.

An amendment to the National Organic Program (NOP) rules, that would provide an exemption for biodegradable plastics making them permissible in certified organic production, has been proposed by the U.S. Department of Agriculture (USDA) Agricultural Marketing Service (AMS). The proposal would permit the use of plastics certified as “biobased” under the USDA BioPreferred program, provided the mulch material degraded at least 90% within two years. While it would be up to the manufacturer to have the mulches certified as biobased and to provide evidence that the mulch could meet the degradation requirements, it would be up to the grower to show that the mulch was not accumulating in their soil.

A recent study at WSU Northwestern Washington Research and Extension Center (NWREC) in Mount Vernon identified a method to track deterioration of biodegradable plastic mulch in the soil after tillage (Cowan et al., 2013). The method, requiring little more than a digital camera and free software (ImageJ, <http://rsbweb.nih.gov/ij/>), involves taking samples of known volumes of soil, sifting out mulch fragments, photographing the fragments against a clean surface, and digitally analyzing the image. In the WSU study, two of the three mulches evaluated deteriorated significantly

over 13 months in the soil, and may have deteriorated enough to meet the proposed organic standard (Figure 1).

A decision on the new amendment could be made as early as January 2014. However, even if biobased biodegradable plastic mulches are approved for use in certified organic production, don't expect to be able to use them this year. It is unlikely that any products would be certified in time for Spring planting in Whatcom County. But, keep an ear to the ground, biobased biodegradable mulches may soon be available for organic growers.



**Figure 1.** Representative samples of three potentially biodegradable mulches recovered from soil (226.2 inch<sup>3</sup>) 42, 132, 223, 299, and 397 days after mulch was incorporated by tillage. The white boxes represent the theoretical maximum mulch area (37.5 inch<sup>2</sup>) for each sample.

HortTechnology 23(6):849-858 (2013).

# 'TIS THE SEASON FOR PNEUMONIA

Dr. Susan Kerr

WSU Northwest Washington Regional Livestock and Dairy Extension Specialist

Fall and winter are prime time for livestock pneumonia. However, good managers know how to recognize early cases and treat for best outcomes. More importantly, they know how to reduce the factors that put animals at risk of this serious disease.

## **Pneumonia: A Scourge of Animal Populations**

Pneumonia means inflammation of the lungs. Inflammation is a normal bodily response to anything foreign that enters the body or disturbs cells; it is actually part of the body's defense system and healing process. Unfortunately, the fluid and cells that rush to a diseased or injured tissue during the process of inflammation can be quite detrimental when this process happens in the lungs. Extra fluid and cells in the free space of the lungs or in the walls of the air sacs can significantly interfere with the exchange of oxygen and carbon dioxide that must occur for optimal animal health and performance. The body's response to a disease-causing agent in the lungs may cause much more damage than the pathogen itself. Pneumonia is rare when animal populations and densities are low. In winter, animals are housed or gather more closely together, increasing the concentration of pathogens in their environment. Confinement and higher animal densities also result in increased air temperatures, humidity and condensation, which are beneficial conditions for pathogen survival and transmission. Contact between disease-carrying individuals and the rest of the herd increases during cold weather, as well.

## **Predisposing Factors**

Pneumonia is a multifactorial disease, which means multiple factors are usually responsible for the development of clinical disease. To clarify, in an otherwise healthy animal, the presence of potentially-pathogenic bacteria in the nasal passages is usually not enough to cause disease. However, a chilled, stressed or malnourished animal is at much greater risk of clinical disease. The bacteria responsible for many cases of pneumonia are common inhabitants of the nasal passages of healthy animals. Many factors can weaken the host's immune system and/or damage the lining of the respiratory tract to such an extent that these pathogens are able to progress deeper into the respiratory tract and cause disease.

## **Viruses**

Viral causes of pneumonia deserve special mention because they often precede cases of secondary bacterial pneumonia. The main viral causes of pneumonia in cattle include Infectious Bovine Rhinotracheitis (IBR), Parainfluenza 3 (PI3), Bovine Respiratory Syncytial Virus (BRSV) and Bovine Viral Diarrhea Virus (BVD). Other recognized but less common pneumonia-related viruses include Herpesvirus, Adenovirus, Rhinovirus, Malignant Catarrhal Fever Virus, Enterovirus and Reovirus. In small ruminants, a chronic "slow virus" (Ovine Progressive Pneumonia virus in sheep and Caprine Arthritis and Encephalitis virus in goats) can also cause pneumonia. The lungs of affected animals enlarge and become less resilient as the body responds to the virus by depositing scar tissue; death

is usually due to a secondary bacterial infection unless animals are euthanized for humane reasons.

### **The Real Culprits**

*Pasteurella multocida* and *Mannheimia haemolytica* are the two bacteria most commonly associated with pneumonia in cattle, particularly in recently-weaned calves that are transported significant distances (“shipping fever”). These bacteria can also be problematic in sheep, goats and swine. Numerous other bacteria can also cause pneumonia including *Mycoplasma*, *Pseudomonas*, *Corynebacterium*, *Staphylococcus*, *Hemophilus*, *Streptococcus*, *E. coli*, *Bordetella*, *Neisseria*, *Erysipelothrix*, and *Fusobacterium*.

### **Miscellaneous Causes**

Fungal organisms can sometimes cause respiratory infections, as can lungworms. White Muscle Disease secondary to selenium deficiency can affect muscles involved in swallowing, predisposing animals to inhalation pneumonia. Vomiting, improper administration of oral medications or any other situation that causes foreign objects to enter the airway can also result in pneumonia.

### **Signs of Illness**

Animals with pneumonia typically have a fever, reduced appetite and are less active than their herd-mates. They may stand alone. They will lag behind when the herd/flock moves. As the disease progresses, animals will have an increased respiratory rate and breathe with difficulty, sometimes to the point of open-mouthed breathing. They may cough, have nasal discharge and/or make noises while breathing. Weight loss and “rough looking” condition are common in chronic cases. Animals can die after a very

short time of illness with few clinical signs or weeks later after a prolonged course of pneumonia. Others can become chronic “poor do-ers” with poor performance; they can also serve as a source of infection for herd-mates.

### **Prevention**

As already mentioned, successful managers are able to keep the incidence of pneumonia low through effective management practices. Here is a summary of effective practices.

1. Provide adequate nutrition, meaning proper amounts of a balanced diet for all individuals based on desired levels of production and performance as well as maintenance. Adjust rations to account for increased maintenance nutrition requirements during cold weather.
2. Do not add new animals to a group without an extensive period of quarantine. Closed herds or closed groups are safest.
3. Consider airflow and nose-to-nose contact: do not have younger animals downwind of or in direct contact with older animals.
4. Do not keep chronic poor do-ers.
5. Minimize dust, smoke and irritating fumes in the environment.
6. Control mud—it promotes chilling, which increases stress and maintenance requirements.
7. Working with your veterinarian, create and implement an effective vaccination program to prevent pneumonia. Follow vaccine recommendations, including proper storage, handling, and administration of doses.
8. Monitor weanlings and young animals carefully—they are the most likely to develop clinical disease.

9. Ensure excellent ventilation that provides fresh, clean air to all animals. Do not mistake drafts for ventilation. Assess air quality at all levels, including nose level of recumbent animals—this is where high ammonia levels are most often detected.

10. Do not overcrowd. Ensure adequate feeder space and bedding space for all animals.

11. Isolate suspected cases in a hospital area. Do healthy animal chores first, then treat sick animals. Change clothing, wash hands and disinfect equipment after handling sick animals.

12. Necropsy dead animals when the cause of death is unknown. Laboratory tests can often identify the causative virus and/or bacteria, determine antibiotic sensitivities and lead to effective vaccination recommendations.

## Conclusion

Losses due to pneumonia are much greater than the obvious loss of individual dead animals. Pneumonia in a herd or flock means animals are not performing up to their maximum potential, production costs are higher than they should be, labor is increased and food product quality may be compromised. Responsible animal caretakers know it is their duty and responsibility to address animal welfare concerns and ensure a safe and healthy environment for their animals. During animal confinement season, it is essential that producers be ever vigilant for the factors that can result in a pneumonia outbreak and mitigate as many of these factors as possible.

For additional information

<http://extension.wsu.edu/vetextension/brd/Pages/default.aspx>

[http://extension.unh.edu/resources/files/Resource000471\\_Rep493.pdf](http://extension.unh.edu/resources/files/Resource000471_Rep493.pdf)

[www.uwyo.edu/vetsci/undergraduates/courses/patb\\_4110/2009\\_lectures/8\\_resp\\_sheep\\_pigs/html/class\\_notes.htm](http://www.uwyo.edu/vetsci/undergraduates/courses/patb_4110/2009_lectures/8_resp_sheep_pigs/html/class_notes.htm)

# START NOW FOR PEST MANAGEMENT IN VEGETABLE TRANSPLANTS

Timothy Elkner  
Regional Horticulture Educator  
Penn State University Extension

*This article appeared in the January 2014 [Vegetable and Small Fruit Gazette](#), the Penn State Extension newsletter for vegetable and small fruit growers. It is being reprinted with author approval.*

**P**est management for vegetable transplant production is an integrated process and includes sanitation, sound cultural practices, the use of resistant cultivars (where possible) and finally, proper use of the correct pesticide. Your pest management program should be starting now in the greenhouse.

Begin the season with a clean, weed-free and disinfected greenhouse. This means clearing the growing area of any plant debris, weeds and any discarded flats or tools. After clean-up, wash and disinfect empty benches, potting areas, storage shelves, tools and leftover cell packs and flats that you plan to reuse. Your disinfecting solution can contain any of the sanitizing products such as Green-Shield®, Phytan 20™, Triathlon®, ZeroTol® or chlorine bleach (10% solution). Be sure to follow the manufacturer's directions when using any commercially prepared materials. If you are using a 1 to 9 bleach solution, remember that it requires a 30-minute soak in order to be effective. Also - while chlorine bleach is an effective sanitizer, please note that there will be a 50% reduction in strength of a chlorine solution after just two hours.

Therefore, you should prepare a new solution each time you plan to sanitize. This includes a new solution after lunch if you started working in the morning.

Once you have the growing area and equipment sanitized, be sure to avoid recontamination. Dirty hose nozzles or tools can contaminate potting soil and the general growing area. Be sure that everything brought into the sanitized area is also clean! The floor or soil in the growing area is a good source of

insects and diseases. Do not stand on the benches after they have been cleaned, as you can easily move diseases up from the floor with your shoes. Use hooks to keep your hose nozzle off the floor. Ideally, grow your transplants off the floor as well, either on benches or pallets. The floor in your greenhouse should be well drained and cleaned before plants are started there. Some growers have taken to covering the entire floor with black fiber cloth to both prevent weed growth and make clean up easier after transplant production. Once dry, plant and soil residues are easily swept-up and removed.

Does your growing area have good air movement? Circulating air not only distributes heat more evenly but can also reduce condensation in the greenhouse. Consider installing a horizontal airflow (HAF) system in your transplant production area. I've heard growers ask if allowing the greenhouse to 'freeze' for several days in cold weather means that insect pests will be killed; and the answer is no. Heat can be more effective than freezing for pest destruction. For example, heat has been shown to be more effective for the control of thrips, according to Leanne Pundt of the University of Connecticut. In one study, high temperature (104°F) combined with very low humidity (less than 10%) for three to four days killed most adult thrips. However, your greenhouse must be completely weed-free for this method to work. If you have constant thrips problems, this control method might be something to try this summer.

Finally, always use disease-free media for transplant production. If using soil, be sure it is pasteurized before you bring it into the growing area. Successful soil pasteurization requires 30 minutes at 180°F. Be sure to frequently sanitize and maintain clean areas where soil is mixed and pots are filled. If you are producing both vegetable transplants and

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ornamentals, I strongly recommend that you have separate growing areas for each group of plants. Bringing cuttings of flowering plants into the vegetable area can introduce pests, such as thrips, and diseases, such as tobacco spotted wilt virus (TSWV). Look at your available space(s) and plan accordingly.

Take some time to prepare your vegetable transplant greenhouse now to reduce disease and insect problems later this season. Waiting until seeding time to start this chore may not leave enough time to do the job thoroughly. This could result in a great deal of time and money spent later to control a disease or insect infestation that could have been prevented.

# PESTICIDE APPLICATOR TRAINING, TESTING AND CREDITED OPPORTUNITES

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## Frequently Asked Questions Regarding Pesticide Application Certification

<http://pep.wsu.edu/faq.html>

## Current License Holders

Find out how many credits you currently have by [visiting WSDA here](#).

Upcoming WSU Pesticide Safety Program Classes are [Listed Here](#)

## Those Seeking a License

### **Internet Courses (available 24/7)**

[Pre-license Courses](#)

## **Pre-License Programs**

[General Information](#).

### Scheduled Courses

March 18, 19, 20

WSU Puyallup Allmendinger Center

Puyallup, WA

March 25, 26, 27

Whatcom Community College

Bellingham, WA

April 1, 2, 3

UW Center for Urban Horticulture

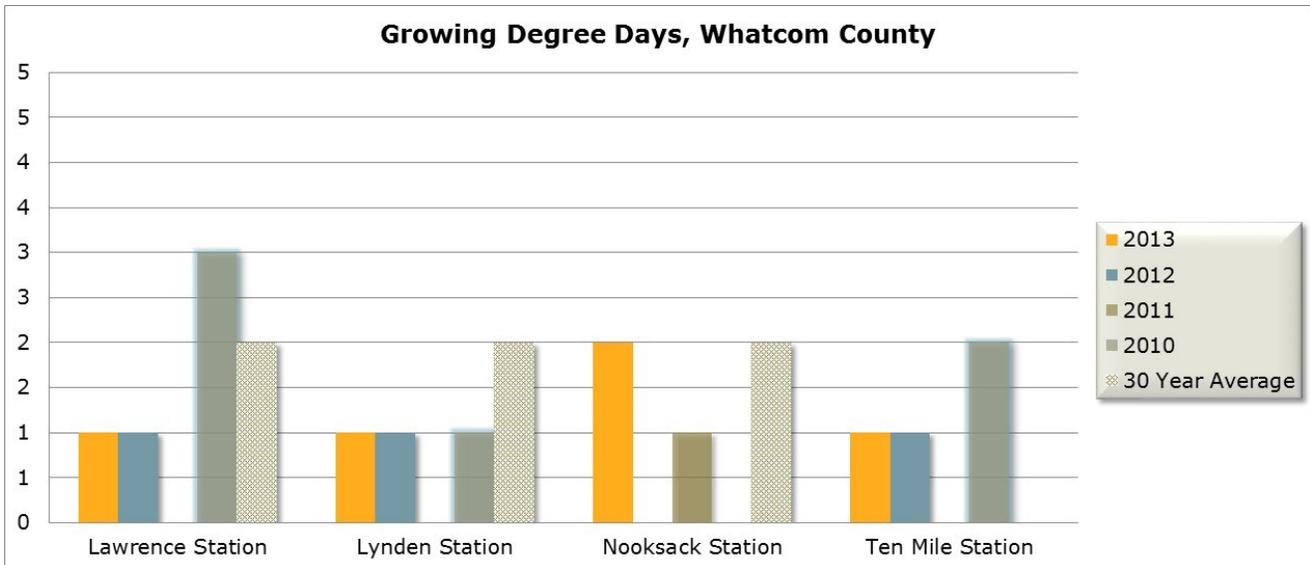
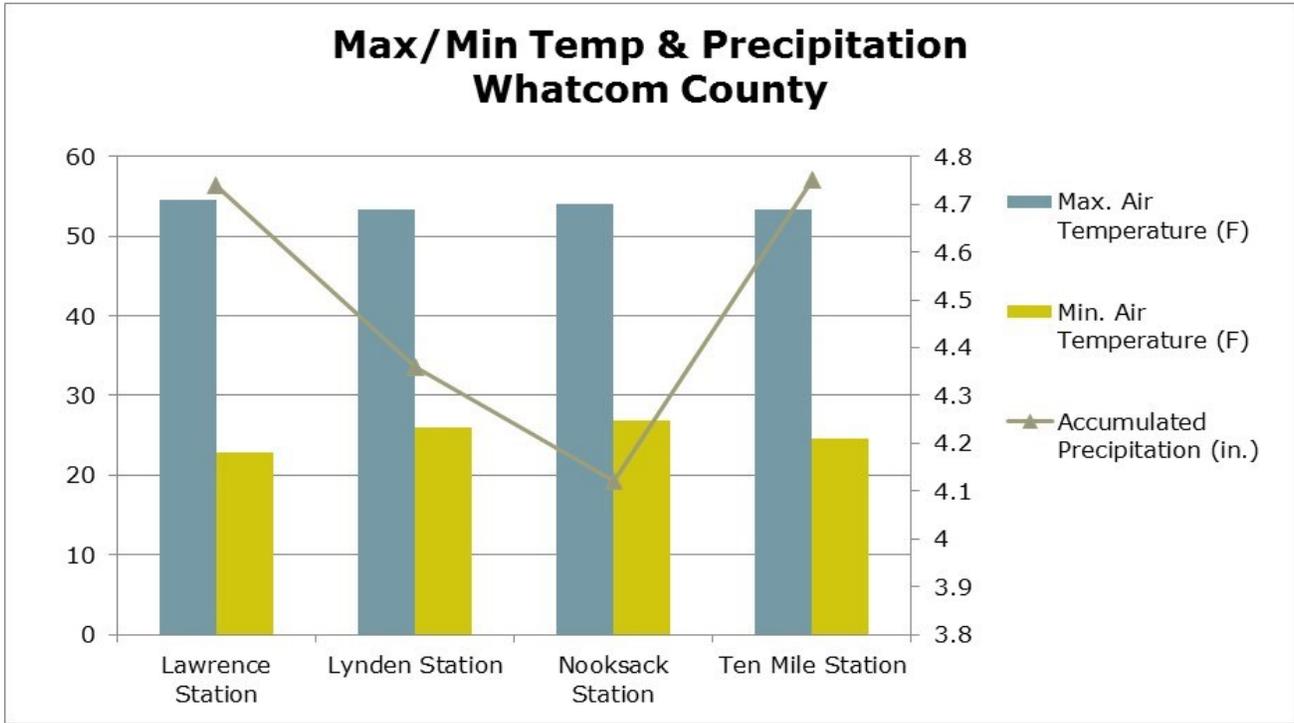
Seattle, WA

[Register for courses](#).

Information on WSDA exam sessions can be [found here](#).

# WEATHER UPDATE

All information here is derived from the four weather WSU AgWeatherNet stations (<http://weather.wsu.edu/awn.php>) in Whatcom County. Current weather conditions can be found at: <http://whatcom.wsu.edu/ag/currentdata.html>. Station information can be found [here](#).



**Chris Benedict**

Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 21

**Colleen Burrows**

Assistant Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 22

**Jessica Shaw**

Assistant Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 23

**Vincent Alvarez**

Designer

WSU Whatcom County  
Extension  
(360) 676-6736

**Cover Image:**

Dormant red raspberry sit  
below frosted mountains.

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[whatcom.wsu.edu/ag](http://whatcom.wsu.edu/ag)

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# Upcoming Events

## January

### Dairy Speaker Series

**Thursday Jan 16  
12:00 pm -1:30 pm**

#### **Ten Mile Grange**

#### **Water Quality and Farming**

Water quality, both surface and ground,  
impact the practices on your farm and what  
you do on your farm impacts  
water quality.

### NRCS EQUIP and Organic Dairy Farms Webinar

**Thursday Feb 16  
11:00 am**

Through the Environmental Quality Incentives (EQIP) Program's Organic Initiative, the USDA Natural Resources Conservation Service (NRCS) provides technical assistance to certified organic, transitioning to organic, and exempt from certification producers. The Initiative also provides financial assistance for organic producers to address natural resource concerns related to organic production.

### To Market, To Market! Workshop

**Jan 23  
9:00**

#### **Mt. Vernon, WA**

The market for local products is stronger than ever, expanding opportunities for producers interested in marketing authentically branded, value-added products.

### 2014 Blueberry Conference

**Jan 27  
Portland, OR**

### Cultivating Success: Sustainable Small Acreage Farming & Ranching

**Tuesdays Jan 28 - Apr 8  
6:30 pm - 9:00 pm**

This 11 week class offers an overview of potential small acreage farming and ranch-

ing enterprises and production systems. Topics covered include sustainable farming practices, whole farm planning, direct marketing, integrated pest management, soil management, and much more!

### Transitioning to Value-Added Products Workshop

**January 27  
9:00 am - 4:00 pm  
Woodinville, WA**

This workshop will provide the region's small scale prepared food producers with up-to-date information and technical knowledge of the food product development process for the specialty food industry and how to bring such products to market.

### Northwest Ag Show

**January 28-30  
Portland, OR**

The region's largest agricultural trade and consumer show is held at the Portland Expo Center.

### Pacific Agriculture Show and Horticulture Growers' Short Course

**January 30-Feb 1  
Abbotsford, BC**

Showcase the latest and most innovative equipment and technology for the agriculture industry. Join thousands of farmers and agri-food producers in comparing and investigating what over 250 dealers and manufacturers have to make your operation more efficient.

## February

### Pastured Poultry Workshop

**Feb 3  
9:00 am—4:00 pm  
Bow, WA**

This workshop is for anyone interested in becoming a poultry producer and for current poultry producers at any scale. Topics include Breeds, chick sourcing and creating an on-farm hatchery, husbandry tips for

**Chris Benedict**

Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 21

**Colleen Burrows**

Assistant Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 22

**Jessica Shaw**

Assistant Editor

WSU Whatcom County  
Extension  
(360) 676-6736, ext. 23

**Vincent Alvarez**

Designer

WSU Whatcom County  
Extension  
(360) 676-6736

**Cover Image:**

Dormant raspberries sitting  
below snow-capped peaks

**Web site:**

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# Upcoming Events

commercial-sized pastured poultry production, feeds and nutrition, markets and marketing, processing techniques from seasoned farmers, plus risk management and licensing.

[OSU eXtension Webinar on SWD](#)

**Feb 11**

**Online**

Biologically based organic management strategies for Spotted Wing Drosophila.

[Regional Food Hubs](#)

**Feb 12**

**9:00 am - 3:30 pm**

**Mt. Vernon, WA**

According to recent studies, food hubs are a real and growing business opportunity for small and mid-scale U.S. farms. Since 2009, NABC has developed several start-up food hubs from Skagit to King County. In this workshop, new and existing food hub sellers will be led through a full day of food hub best practices for online and offline sales success. Learn how to use the online food hub management tool to optimize market potential and increase sales to commercial and institutional buyers.

[Soil Quality Network 2014:](#)

[Practice Soil Health for](#)

[Farmers](#)

**Feb 13**

**8:00 am—5:00 pm**

**WSU NWREC Mt. Vernon**

Topics covered include: field assessment of soil quality, cover crops, compost, and plant disease

[Winter Orchardring Workshop](#)

**Feb 13**

**Mt. Vernon, WA**

Cutting edge information in a dynamic 1-day workshop featuring a team of experienced professionals led by expert Western Washington Orchardist Gary Moulton, and Tory Schmidt of the Washington Tree Fruit Research Commission. Presentations will address needs of both the conventional and organic orchardist.

[Forum on Cover Crops and Soil Health](#)

**Feb 18**

**10:00 am**

**WSU Extension, Bellingham**

You are invited to attend a free, live broadcast of the February 18<sup>th</sup> SARE-sponsored *National Conference on Cover Crops and Soil Health*. Join the conversation at one of nearly 200 *Cover Crops and Soil Health Forums* to be hosted nationwide by the Natural Resource Conservation Service (NRCS) and Cooperative Extension offices.

[Register Here](#)

[USDA/WSDA Specialty Crop Education Listening Session](#)

**Thursday Feb 20**

**9:30 am - 11:00 am**

**WSU NWREC Mt. Vernon**

As Federal farm policy continues to rely more on crop insurance, it is imperative to make sure our state's specialty crop industry's safety net needs are considered. USDA's Farm Service Agency, Risk Management Agency and the Washington State Department of Agriculture have joined together to reach out to specialty crop farmers in order to assess these needs and improve crop insurance and related programs for specialty crop farmers.

[Food Ingredient Short Course](#)

**Wednesday Feb 26**

**7:30 am - 5:45 pm**

**Seattle, WA**

This is an introductory course on Food Ingredient Technology. The short course provides an overview of major food ingredients that are used in processed foods. It provides an overview of the various functionalities of the ingredients and how they are used in making foods with qualities that are desired by consumers.